

# Hawaii Renewable Energy Alliance

April 13, 2009

The Honorable Chairman and Members of the  
Public Utility Commission  
465 S. King Street  
Honolulu HI 96813

PUBLIC UTILITIES  
COMMISSION

2009 APR 13 A 7:56

FILED

Subject: Docket No. 2008-0273: Instituting a Proceeding to Investigate the  
Implementation of Feed-in Tariffs

Re: Qualifications for HREA's Panel Hearing Experts

Dear Commissioners:

Per the Commission's letter on April 7, 2009, enclosed are qualifications,  
including resumes, for HREA's Experts that were identified for the Panel Hearing  
scheduled for April 13 to 17, 2009.

This letter is being served on April 13, 2009 as follows: two copies by hand-  
delivery to the Consumer Advocate and to the rest of Parties by electronic  
transmission.

Sincerely,

  
Warren S. Bollmeier II  
President

**RESUME**  
**WARREN S. BOLLMEIER II**

**PROFESSIONAL SUMMARY**

Mr. Bollmeier has 37 years of experience in solving technical, management and personnel problems. He has 31 years of experience in supervising and managing renewable energy projects and activities for government and private clients. He has extensive, detailed knowledge of and expertise in wind, solar and hybrid system technologies. He also has a working knowledge of biomass, geothermal, hydro, hydrogen, ocean and wave resources and energy conversion technologies. He has managed government-sponsored research, development and demonstration (RD&D) projects with a variety of industry, utility and other collaborative partners. He has developed and maintained a detailed knowledge of the design and deployment of renewable energy systems for remote power, village power and utility commercial applications. He has extensive, detailed knowledge and experience in developing and promoting energy policy issues at utility, state and federal levels. He is also working to develop new renewable projects in Hawaii.

Mr. Bollmeier has the abilities to provide clear definition of problems and to form and work with teams to implement sound projects and activities. He has excellent communication skills and has worked with a variety of U.S. and foreign government agencies, laboratories, universities, private organizations, industry, utilities and environmental advocacy groups. He has managed numerous projects both in the U.S. and overseas.

**PROFESSIONAL EXPERIENCE**

Wind Project Development (1996 to present). Mr. Bollmeier consulted with General Electric Wind Energy (formerly Enron Wind Corporation, formerly Zond-Pacific), Tehachapi, CA, to develop two windfarms in Hawaii, one on the island of Hawaii at Kahua Ranch (10 MW) and one on Maui at Kaheawa Pastures (20 MW). This work included preparation of an environmental impact statement for the Kaheawa windfarm on state conservation land. The windfarm was redesigned to 30 MW, constructed and is being operated constructed by Urban Power Corporation in partnership with Makani Nui on Maui. Mr. Bollmeier also consults with Hawi Renewable Development on their 10 MW windfarm at Hawi on the Big Island, and with Pe'ahi Farms on their integrated farm and residential development on Maui. Pe'ahi plans to use wind and solar to pump water and meet other energy needs. Mr. Bollmeier continues to look for other development opportunities in Hawaii.

Renewable Energy Study (2003). Mr. Bollmeier conducted a study of renewable energy and unconventional energy resources for the Hawaii Energy Forum, Honolulu, Hawaii<sup>1</sup>. The objective of this study was to develop and evaluate a working database of potential *wind*, *solar* and *biomass* projects and other commercial activities for the generation of electricity in Hawaii over the next 30 years, and to examine possible frameworks for evaluating the resulting economics impacts. The key outputs were the preparation of a strategy to phase in renewables into the electric utility grids, an evaluation of the potential for alternative public policy options to facilitate the implementation process, and a preliminary assessment of the overall economic impacts to the state. The key results indicate that Hawaii could reach a state

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<sup>1</sup> For details of this study, please see: <http://hawaiienergypolicy.hawaii.edu/papers/bollmeier.pdf>.



wide renewable electricity fraction of over 28% by the year 2018 with the implementation of 19 wind, solar and biomass projects.

Energy Policy Issues (1993 to present). Mr. Bollmeier has participated as an advisor to Hawaiian Electric Company (HECO) on their Integrated Resource Plan (IRP) since 1993, and with Maui Electric Company (MECO) on their IRP since 2004. In 1994 to 1995, he participated on a docket at the Hawaii Public Utility Commission (HPUC) investigating the role of renewables in Hawaii's utility market. In 1995, he helped found the Hawaii Renewable Energy Alliance (HREA) to promote the increased use of renewables in Hawaii. As President of HREA since 2000, he has been working closely with State Legislators, the utility, state agencies, industry members, environmental activist groups and others to secure a renewable future for Hawaii. Mr. Bollmeier led HREA's intervention in HPUC dockets to investigate increased competition in and possible restructuring of Hawaii's electric utility market (No. 96-049), to review and approve Maui Electric Company's Integrated Resource Plan (No. 99-0004). Subsequently, has lead and is leading HREA's intervention in dockets to investigate: (i) Distributed Generation in Hawaii (No. 03-0371), (ii) competitive bidding for new generation (No. 03-0372), (iii) demand-side management and energy efficiency (No. 05-0069), (iv) net energy metering (No. 2006-0084), Solar Water Heating Pay As You Save Program (No. 2006-0425). Since 1995, Mr. Bollmeier has also led HREA's lobbying activities at the Hawaii State Legislature, and played an active role in gaining support for extension of our states renewable energy tax credits and establishing renewable portfolio standards and net energy metering.

Solar Policy Analysis Workshop, Honolulu, HI, 1997. Mr. Bollmeier organized, coordinated and led a workshop for USDOE/NREL and the State Energy Office on solar policy options for Hawaii. The successful workshop included discussion of the State of Hawaii's solar tax credits, green pricing programs, net energy metering and broad-based policy support initiatives.

Sustainable Home Energy Use Guide, County of Maui, 1996. Mr. Bollmeier prepared a consumer-oriented guide for Maui County residents. The guide includes energy-efficiency, solar-hot water collector, photovoltaic system and small wind turbine options for home owners.

Solar-Kiln Dryer Project, Pacific Center for High Technology Research (PICHTR), 1992 to 1994. Mr. Bollmeier managed a \$250K joint project with Sumitomo Engineering Company, Tokyo, Japan. The project included a test evaluation of an innovative solar system that was used to dry wood and fruit products at a test site on the Island of Hawaii.

Wind/Pumped-Hydro Integration and Test (WPHIT), Pacific Center for High Technology Research (PICHTR), 1992 to 1994. Mr. Bollmeier managed a \$550K project on the Island of Hawaii (Kahua Ranch) to demonstrate the integration of wind with pumped-hydro storage for utility application. The project included participation from the State of Hawaii Department of Business, Economic Development and Tourism (DBEDT)-Energy Division, the Hawaii Natural Energy Institute, Kahua Ranch Limited, and the Hawaii Electric Light Company.

Downhole Coaxial Heat Exchanger (DCHE) Demonstration, 1990 to 1993. Mr. Bollmeier managed a \$560K, U.S.-Japan project to demonstrate the DCHE concept. The U.S. partners included PICHTR and DBEDT. The Japanese partners included the Ministry of International Trade and Industry (MITI) and Sumitomo Engineering Company. An experimental test evaluation was performed at the HGP-A geothermal site on the Island of Hawaii.

Cooperative Field Test Program, SERI, 1984 to 1989. Mr. Bollmeier managed 13 cooperative research agreements for USDOE with wind industry partners. The projects included testing of utility scale wind turbines and siting studies (\$2.3M total value).



Wind Energy Conversion Systems (WECS) Technology Group, Small Wind System Program, 1982-1984. Mr. Bollmeier managed a small group of engineers and technicians that were responsible for field testing of commercial wind turbines in California. He participated in the early development of standards for wind turbines and related technologies.

Wind Energy Assessment, USDOE/Government of Yugoslavia, 1984. Mr. Bollmeier was a member of a USDOE team which assessed wind energy potential in Yugoslavia.

Wind Turbine Demonstration Project, USAID, Cape Bon, Tunisia, 1983 to 1984. Mr. Bollmeier managed a demonstration project for USAID in conjunction with the Solar Projects Office, NASA, Plumbrook, Ohio. He coordinated with the Tunis Mission Office and the Tunisian Electricity and Gas Company (STEG). The project included resource and site assessment, design, procurement, pre-commissioning tests, packaging, shipment and installation of two 10 kW wind turbines at Cape Bon, Tunisia.

Hybrid-Energy System Project, 1982 to 1983. Mr. Bollmeier managed a hybrid energy system project for the U.S. Army, Ft. Huachuca, AZ. The project included design and testing of a complete system consisting of three small wind turbines (total of 5 kW), two photovoltaic systems (total of 3 kW), a battery and control system.

System Development Group Manager, Small Wind Systems Program, 1980 to 1982. Mr. Bollmeier managed the System Development Group (three engineers and one administrative assistant) and directed 14 separate projects for new wind turbine designs (\$15M total value). The project included design, fabrication, and testing of prototype units at Rocky Flats, CO.

Technical Monitor, Small Wind Systems Program, 1997 to 1980. Mr. Bollmeier managed three subcontracts (\$1.7M total value) for the development of small (1 to 2 kW), high-reliability, wind turbines for remote applications. Two of these contractors subsequently commercialized wind turbines for remote and village power applications.

Project Engineer, Solid Rocket Division, Air Force Rocket Propulsion Laboratory, Edwards AFB, CA, 1974 to 1977. As an USAF Captain, Mr. Bollmeier was responsible for two RD&D projects (\$3.1M total value) to develop solid rocket motors for upper stage launch vehicles. He also provided technical support to the Space Defense Vehicle and Space Shuttle Programs.

Systems Engineer, Engineering Division, Air Force Plant Representative Office, Lockheed-Georgia Company, Marietta, Georgia, 1971 to 1974. As an USAF lieutenant, Mr. Bollmeier approved production design changes to the C-5A landing gear, ground-support and personnel subsystems, and monitored Lockheed's system safety and human engineering programs.

## EDUCATION

B.S., Aerospace Engineering, University of Texas-Austin, Austin, TX, 1969

M.S., Aeronautical-Mech. Engineering, Air Force Institute of Technology, Dayton, OH, 1971

M.B.A., Management, Georgia State University, Atlanta, GA, 1973

## PROFESSIONAL ORGANIZATIONS

America Society of Mechanical Engineers  
American Solar Energy Society  
American Wind Energy Association  
Geothermal Resources Council  
Hawaii Renewable Energy Alliance  
Hawaii Solar Energy Association

## TECHNICAL REPORTS/PUBLICATIONS

List available upon request.

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**JODY ALLIONE**  
RENEWABLE ENERGY  
PROJECT MANAGEMENT & DEVELOPMENT  
1005D Kailua Road  
Kailua, HI 96734  
808-664-5710 808-347-3174 cell  
jody\_allione@yahoo.com

**SUMMARY:** A creative and energetic global thinker in the energy industry with a focus on achieving corporate or project objectives with team building, creative problem solving, and focused task management. A solid background in project development, marketing, strategic business planning, and project management coupled with strong networking skills and the ability to motivate team members. As an independent consultant to the energy industry for over 25 years has operated as a project developer / marketer with strong skills in siting analysis, agency interface, business development, and developing relationships with local community groups.

**EXPERIENCE:**

**UPC Solar (2008)**

**Director Business Development – Hawaii**

Project development director for utility scale solar projects on multiple islands.

**US Renewables / US BioDiesel Group (Dec 2006-Dec 2007)**

**Consulting Assignment**

Development support for biodiesel projects in Hawaii including a due diligence review of a prospective renewable project on Kauai for USRG. Additional work related to biodiesel terminal siting for a subsidiary.

**Barlow Projects, Inc (2002-2006)**

**Sr. Project Development Manager (consultant)**

Project development director for municipal solid waste to energy projects in the Western states currently focused on Hawaii. Responsible for marketing, site development, political lobbying, permitting reviews, power sales and all preliminary work related to developing projects in Hawaii and the Western States. Developed and maintained strong alliances and relationships with the Hawaiian utilities, land owners, counties and developers focused on new power projects in the state.

**Global – A 1<sup>st</sup> Flagship Company (2005-2007)**

**Business Development Consultant**

Responsible for connecting the DOD logistics services company to the native Hawaiian community with the intent to form alliances as small business enterprises and service the Pacific Rim military complex. Represents the company at various military and native Hawaiian business functions and coordinates conferences and partnership prospects.

**ENSR International (2001-2004)**

**Energy Programs Marketing Consultant**

Business development representation for environmental services for the energy industry in the western region. Represented six western states offices through direct sales contacts, networking via conferences and seminars in the various energy sectors including: natural gas, coal, wind, pipeline, and renewable power projects. Prospective clients included independent power producers, utilities, municipalities and large prime contractors.

**Kinder Morgan Power Company (2000-2001)**

**Site Development Consultant**

Responsible for finding sites in the west for 550 MW combined cycle plants. Performed due diligence related to acquisitions. Development issues included: water rights, transmission interties, pipeline access, requirements for power sales, marketing power in the west, air permitting. Siting considerations included parklands, endangered species, local Indian tribes' issues, and local resistance. Also of concern were options relating to coal in the region and disposal alternatives as well as BLM land swap issues for interconnection and rail access. Led due diligence reviews for joint ventures and other investment opportunities in the power sector.

**Enserch Development Corp/ Texas Utilities (1991-2000)****Sr. Project Development Manager**

Development Manager for the 60 MW combined cycle Hamakua Energy Partners project on the Big Island of Hawaii. Responsible for the concept, strategy, and development of the cogeneration project including utility negotiations, site acquisition, permitting, state, county and community relations, project design, thermal host negotiations, fuel supply, storage & transportation, PUC interventions and all other development activities. Duties included management and implementation of power plant site planning and development strategy, coordination with legal firms and technical consultants. Responsible for permitting coordination including: air, NPDES, zoning, wells, noise and building permits. Managed scheduling and budget, interfaced with financial and technical analysts, utility and regulatory agencies on the local, county, state and federal level.

Prior to this full time project role, was responsible for Western Region projects including cogeneration and renewable energy projects. Analysis of siting and permitting issues, project analysis for acquisitions and joint ventures, business development, new project proposals and interfacing with joint venture partners. Project types included gas fired combined cycle cogeneration, simple cycle peakers, coal fired FBC projects, pumped storage, and geothermal.

**Ebasco Services Incorporated (1984-1990)****Regional Business Development Planning Consultant**

Coordinated business development efforts of a multi office engineering staff for power projects in the western states with focus on development partnerships and risk investment. Worked with all aspects and disciplines of engineering and permitting to determine project viability. Developed a region-wide strategic plan to develop new markets and consolidate the various operating companies and divisions of Ebasco. Wrote business plans and marketing strategies for various business units and subsidiaries including Ebasco Environmental, Ebasco Constructors and E&L.

**Owl Energy Resources (1982-1986)****Marketing & Planning Consultant**

Conceptualized and developed the business plan, hired staff, and managed the startup of a subsidiary cogeneration development company of the Owl Companies. Key development team member of a 25 MW wood-fired facility in Staten Island, New York. Other development projects included turbo-expander cogeneration plants and industrial cogeneration projects.

**Various Clients (1981-1986)****Consulting**

Worked with multiple clients in the engineering, construction, and services industry. Consulting included strategic planning, marketing strategies, organizational development, seminars, and brochures for several Owl Constructors, Wolder Engineering, POD (landscape architect), and Grunau Construction.

**Brinderson Corporation (1978-1981)****Marketing Director**

Responsible for all aspects of business development and marketing for national general contractor focused on the heavy industrial markets. Marketing included transitioning the company from mechanical subcontractor to general contractor, union to double-breasted status, public works to private industrial clients, and local to national within a three-year period. The company bookings quadrupled within this timeframe.

**Worthington Pump Corporation (1974-1977)****Sales Engineer**

Product sales to process industries including refining, petrochemical, mining, municipal, food and manufacturing companies throughout Southern California.

**EDUCATION:** Pepperdine University  
Clarkson University

Distribution

Master of Business Administration  
Bachelor of Science Industrial

School of Engineering



## **RICHARD A. HORN**

### ***SUMMARY***

With my past experience, I bring over 29 years of hydro, wind and power generation related experience to the Company, and as Vice-President and Chief Operating Officer, my versatility, knowledge and conscientious endeavors have assured Site Constructors, Inc. its recognition in the industry. I am currently responsible for the finance, marketing, engineering, estimating, scheduling, and planning of daily operations.

As Superintendent for Eagle Construction of Colorado, I was responsible for a portion of the construction and installation of three 750 MW Allis-Chalmers turbines and Canadian GE generators and appurtenances at Grand Coulee Dam (USBR). While spending three years on this project, I was the designated safety officer for the company. I was charged with keeping up with the evolving changes in safety requirements and implementing the same.

As millwright and Supervisor for the Shirley Company of California, I was responsible for the installation of two 200 MW Allis-Chalmers turbines and appurtenances as well as various Butterfly and Fixed Cone Valves, ring followers at the New Melones Power Station.

As manager of Axel Johnson Engineering Company Site Services Division for North America, I actively participated in the successful completion of numerous projects.

### ***STATEMENT***

Since 1976 I acted in Supervisory/Management capacity developing and focusing on systems and methods which ultimately led to the successful, both operational and financial, installation of many hydro-related projects.

During tenure at Axel Johnson Engineering Corporation, I developed successful implementation of field service work as Manager of AJEC Site Services Division. In this capacity, I made crucial decisions regarding safety plans, selection, hiring, and supervision of site engineers who were capable of receiving direction and acting out instructions in a competent manner. Effective coordination with Project Management, Purchasing, and Senior/Executive Management was the root cause for our department's success.

Currently acting as Vice President - Engineering and Chief Operating Officer of Site Constructors, Inc., I have applied experience and expertise in the hydro industry to a variety of installation projects, operational maintenance and design repair work of existing facilities as well as performing planning and estimating duties for bidding of new projects. I also worked as a consulting Engineer for Bering Electric, John Eastwood Associates, City of Santa Clara, et al.



## **EMPLOYMENT**

**1986-Present** *Site Constructors, Inc.*

Chico, CA - CA Lic. #503297

Vice President - Engineering and Chief Operating Officer. See Attached Hydro Electric Project Profile. SCI operates as a state of California Minority Business.

**1980-1986** *Axel Johnson Engineering Corporation*

San Francisco, CA

Site Engineer and Manager AJEC Site Services Division. See listing of projects.

**1978-1980** *Guy F. Atkinson Company*

So. San Francisco, California

Site Engineer and Supervisor at New Melones Project, Jamestown, California, for the USBR. Installation of two 150 MW Allis Chalmers turbines and appurtenances as well as various Butterfly and Fixed Cone valves, ring follower, etc.

**1976-1978** *Eagle Construction*

Loveland, Colorado

Superintendent of a portion of the construction and installation of three 750 MW Allis Chalmers turbines, Canadian GE generators and appurtenances at Grand Coulee Dam (USBR).

## **EDUCATION**

**1986** *State of California* - Completed requirements to obtain Class A General Engineering Contractor license.

**1973-1976** *California State University - Chico, California*

Industrial Technology major with emphasis on heavy construction. Served university internship at Grand Coulee Dam, Washington. Machinery erectors apprenticeship served concurrently with attendance at CSUC. Maintained 3.6 GPA.

**1970-1973** *Butte College - Oroville, California*

Pre-Engineering and Engineering courses. Deans List in 1972 & 1973. Wrote two technical articles that were subsequently published in a hydro journal.

## **REFERENCES**

Available upon request.

### **Axel Johnson Engineering Corporation - Hydroelectric Projects**

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#### **Rollins Lake - Colfax, California - 1980**

Turbines/Valves - Owner: Nevada Irrigation District

Site Engineer for the installation of one 13 MW S. Morgan Smith Turbine, one 8 ft. Dia. Penstock Protection Valve, and one 8 ft. Dia. TSV AJEC modified, refurbished, and reinstalled components/equipment at a new location.

#### **Wilgoos Lab - Hartford, Connecticut - 1980**

Butterfly Valves - Owner: Pratt & Whitney Aircraft

Site Engineer directing assembly, installation, and commissioning of Butterfly valves ranging in size from 5 ft. Dia. To 16 ft. Dia. Valves were used to regulate altitude and temperature in conjunction with wind tunnel test simulations.

#### **Peach Bottom Nuclear Power Station - Delta Pennsylvania - 1980**

Cooling Tower Lift Pumps - Owner: Philadelphia Electric

Site Engineer directing assembly and installation of two 300,000 GPM Pullout-type Cooling Tower Lift Pumps for condenser cooling facilities.

#### **Russellville Unit No. 2 - Arkansas - 1980**

Main Circulating Water Pumps for 900 MW Nuclear Plant - Owner: Arkansas Power & Light - General Contractor: Bechtel, San Francisco

Site Engineer directing assembly and installation of two 202,500 GPM Vertical Wet Pit Pull-Out Pumps.

#### **White Bluff - Arkansas - 1980**

Main Circulating Water Pumps for 900 MW Fossil Plant - Owner: Arkansas Power & Light - General Contractor: Charles T. Main

Site Engineer directing assembly and installation of four 155,000GPM Vertical Wet Pit Pull-Out Pumps.

#### **Independence - Arkansas - 1980**

Circulating Water Pumps for 900 MW Coal-Fired Plant - Owner: Arkansas Power & Light - General Contractor: Charles T. Main



Site Engineer directing assembly and installation of four 155,000 GPM Vertical Wet Pit Pull-Out Pumps.

Palo Verde Nuclear Power Station - Phoenix, Arizona - 1980

Circulating Water Pumps - Owner: Arizona Public Service

Contract Engineer handling contract agreement for the fabrication of circulating water pumps.

Site Engineer directing assembly and installation of twelve circulating water pumps. Plant utilized treated waste water from City of Phoenix. Due to system circulation of corrosive fluids, it was necessary to design and construct rotating components using Ni-Al-Br alloy.

Arnold AFB - Tullahoma, Tennessee - 1980

Butterfly Valves - Owner: USAF

Site Engineer directing assembly and installation of 27 Butterfly valves. Valves ranged in size from 7 ft. Dia. To 32 ft. Dia. (world's largest). Valves used in wind tunnel operation simulating supersonic, high altitude conditions.

Hope Creek, Units 1 & 2 - New Jersey - 1980

Main Circulating Water Pumps - Owner: Public Service Gas & Electric of New Jersey

Site Engineer directing assembly and installation of eight 138,000 GPM Vertical Wet Pit Pumps for two 1067 MW Nuclear Power Plants.

Sea Brook, New Hampshire - 1980

Main Circulating Water Pumps - Owner: Public Service of New Hampshire

Site Engineer directing assembly and installation of two 130,000 GPM Vertical Wet Pit Pumps for two 1200 MW Nuclear Power Units.

Spinney Mountain - Colorado - 1981

Fixed Cone Discharge Valves - Owner: City of Aurora, Colorado

Site Engineer supervising installation of five Fixed Cone Discharge valves (Howell Bunker Valves). Valves regulated discharge of city water reservoirs and ranged in size from 12" to 84" dia.

Sly Creek - Strawberry Valley, California - 1981

Butterfly Valves - Owner: Oroville Wyandott Irrigation Dist.

Site Engineer supervising assembly and installation of two 96" metal-seated Butterfly valves and ancillary equipment which included hydraulic power packs, operators, etc. Valves were flow control regulating valves for a hydroelectric turbine - one Penstock Protection Valve and one TSV.

OSO Pumping Plant, California - 1981

Replacement Impellers - Owner: State of California, Department of Water Resources

Site Engineer directing the installation of a replacement impeller for a 70,400 GPM Vertical Wet Pit Pump.

H.J. Heinz Co., California - 1981

Replacement Pump - Owner: F.A. Bellato

Site Engineer directing the installation of a 14,000 GPM Horizontal Mixed Flow Tomato Paste Pump.

D.B. Wilson Station - Kentucky - 1981

Circulating Water Pumps - Owner: Big Rivers Electric - General Contractor: Burns and Roe, Inc.

Site Engineer directing assembly and installation of seven 66,700 GPM Vertical Wet Pit Pumps for a 440 MW Coal-Fired Plant.

Point Coupee, Louisiana - 1981

Flood Control Station - Owner: U.S. Army Corps of Engineers

Site Engineer directing assembly and installation of three 224,200 GPM Vertical Wet Pit Pumps, 4000 HP diesel motor drivers, switchgear and controls, etc.

St. Francis Basin - Blythville, Arkansas - 1981

Drainage System - Owner: Corps of Engineers

Site Engineer supervising mechanical installation of pumping station complex. Scope of work included complete pumping unit package which involved three 1600 HP



diesel drive units, installation and alignment of 90 degree gearboxes, and the respective 105,000 GPM Vertical Storm Water pumps.

Sepulveda - Brentwood, California - 1982

Spherical Valves - Owner: Metropolitan Water District, Los Angeles

Site Engineer directing assembly, installation, and commissioning of three 54" ID Spherical valves and corresponding hydraulic power packs. Units installed in Metropolitan Los Angeles to control inlet and outlet water flow to in-line hydroelectric generating stations. System operated under an 800 ft. head.

Delta - Tracy Pumping Station - 1980

Replacement Impeller - Owner: California Dept. of Water Resources

Contract Administrator for manufacture of 1067 CFS turbine-type Lift Pump. The new impeller, made of CA6NM stainless steel, replaced a carbon steel impeller.

H.J. Heinz Co., California - 1982

New Pump - Owner: F.A. Bellato

Site Engineer directing the installation of a 14,000 GPM Horizontal Mixed Flow Tomato Paste Pump.

Oxy Geothermal, California - 1982

Geothermal Power Plant - Owner: Occidental Geothermal - General Contractor: Stone & Websher

Site Engineer directing assembly and installation of three 52,000 GPM Vertical Wet Pit Pumps.

Geysers Units 16-18, California - 1983

Geothermal Plant - Owner: Pacific Gas and Electric

Site Engineer directing assembly and installation of six 42,000 GPM Vertical Wet Pit Pumps.

Geysers Unit 20, California - 1983

Geothermal Plant - Owner: Pacific Gas and Electric

Site Engineer directing assembly and installation of four 42,000 GPM Vertical Wet Pit Pumps.

Olokele - Hawaii - 1982

Turbine - Owner: Olokele Sugar Company

Site Engineer supervising the installation of a 615 mm Dia. Francis Turbine/Generator, switchgear and controls, Turbine Shutoff Valve, etc..

Fairfield & Canal Creek - Turlock, California - 1983

Turbines & Valves - Owner: Turlock Irrigation District

Site Engineer and supervising Division Manager for installation of two 1850 mm Kaplan Turbines together with turbine inlet valve, synchronous generator, governor system, switchgear, and control system.

R.W. Mathews - Eureka, California - 1983

Turbines - Owner: Humbolt Bay Municipal Water District

Site Engineer and supervising Division Manager for installation of two 600 mm Horizontal Francis Turbines, turbine inlet valves, bypass valve system, hydraulic governor sets, synchronous generators, switchgear, and control systems.

As Manager of AJEC Site Services Division, responsible for direction and successful commissioning of many installation projects after 1983. This involved both field work and home office management for such projects as Mt. Ida, Kents Falls, Fort Miller, Capitola, Lower Camp Creek, Stony Gorge, et al. Which involved working closely with all departments providing technical assistance and decision making input. A complete technical listing of these projects will be provided upon request.

**Off-Shore Projects**

Federated States of Micronesia - Ponape Island - 1985

Working with design engineering and technical sales group (Axel Johnson Engineering Corp.), prepared installation workscope and schedules for installation of two Horizontal Francis Turbine/Generator sets including all logistics for personnel and equipment.

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SITE CONSTRUCTOR'S, INC.  
PROJECT PROFILE

DATE	PROJECT NAME	STATE	DESCRIPTION	OWNER	CONTACT
1980	Rollins Lake	CA	V Francis	Nevada City Irrigation District	Richard Horn - Axel Johnson
1980	Rollins Lake	CA	V Francis	Nevada City Irrigation District	Howard Horn - Shirley Co
1981	Pyramid Lake	CA	6-Jet Impulse Machines, (2) 96" TSV, (2) 65,000 hp	DWR	Howard Horn - Shirley Co
1982	Hamakua	HI	H Semi-Kaplan	Hawaiian Commercial & Sugar	Richard Horn - Axel Johnson
1982	Olokele	HI	H Francis	Olokele Sugar Co	Richard Horn - Axel Johnson
1982	Potsdam	NY	V Semi-Kaplan	Village of Potsdam	Richard Horn - Axel Johnson
1982	Indian Valley	CA	H Francis	Yolo County Flood Control	Richard Horn - Axel Johnson
1982	Garland Canal	WY	H Turgo	Shoshone Irrigation Dist	Richard Horn - Axel Johnson
1982	Capitola	NC	H Semi-Kaplan	French Broad Electric Cooperative	Richard Horn - Axel Johnson
1982	Pont Loma	CA	V Francis	City Of San Diego	Richard Horn - Axel Johnson
1982	Mt Ida	CA	H Francis	Mt Ida Associates	Richard Horn - Axel Johnson
1982	Garfield	VT	H Francis	Morrisville Water & Light	Richard Horn - Axel Johnson
1983	Merrill	WI	H Kaplan	Wisconsin Public Service	Richard Horn - Axel Johnson
1983	Port Leyden	NY	H Kaplan	Cataldo HydroPower Assoc	Richard Horn - Axel Johnson
1983	Rock Island	NY	H Kaplan	Cataldo HydroPower Assoc	Richard Horn - Axel Johnson
1983	Fairfield Canal	CA	H Kaplan	Turlock Irrigation District	Richard Horn - Axel Johnson
1983	Canal Creek	CA	H Kaplan	Turlock Irrigation District	Richard Horn - Axel Johnson
1983	R W Matthews	CA	H Francis	Humbolt Bay Mun. Water Dist	Richard Horn - Axel Johnson
1983	Drop 1	CA	H Kaplan	Imperial Irrigation Dist	Richard Horn - Axel Johnson
1983	Lake Mendocino	CA	H Francis	City Of Ukiah	Richard Horn - Axel Johnson
1983	Unionville	NY	H Kaplan	Potsdam Power Partnership	Richard Horn - Axel Johnson
1983	Hewittville	NY	H Kaplan	Potsdam Power Partnership	Richard Horn - Axel Johnson
1983	Sultan River Basin	WA	6-Jet Impulse Machines, 2 horizontal shaft 10 MW machines, (2) 96" TSV	Snohomish County PUD	Howard Horn - Shirley Co
1983	Kents Falls	NY	V Francis	New York State Electric & Gas	Richard Horn - Axel Johnson
1983	Fort Miller	NY	H Pui Kaplan	Fort Miller Assoc	Richard Horn - Axel Johnson
1983	Stampede	CA	V Francis	Bureau of Reclamation	Richard Horn - Axel Johnson
1983	Miramar	CA	V Francis	San Diego Water Authority	Richard Horn - Axel Johnson
1983	Alvarado	CA	H Francis	San Diego Water Authority	Richard Horn - Axel Johnson
1983	Bowman	CA	H Francis	Nevada City Irrigation District	Richard Horn - Axel Johnson
1983	Valley Falls	NY	H Pui Kaplan	William Bantz	Richard Horn - Axel Johnson
1983	Clement Dam	NH	H Kaplan	Seaward Construction	Richard Horn - Axel Johnson
1984	Whitewater	CA	H Francis	Desert Water Agency	Richard Horn - Axel Johnson
1984	Logan No. 2	UT	H Francis	City of Logan	Richard Horn - Axel Johnson
1984	Stenner Canyon	CA	H Pelton	City of San Luis Obispo	Richard Horn - Axel Johnson
1984	Owyhee	OR	H Francis	Owyhee Irrigation District	Richard Horn - Axel Johnson
1984	Farmers No 2	OR	H Francis	Farmers Irrigation District	Richard Horn - Axel Johnson
1984	Lower Camp Creek	CA	H Pelton	Hood River	Richard Horn - Axel Johnson
1984	Pyrites	NY	H Francis	Solar Research	Richard Horn - Axel Johnson
1984	Galesville	OR	H Francis	Hydra-Co & Pirites Assoc	Richard Horn - Axel Johnson
1984	Lake Siskiyou	CA	H Francis	Douglas County, OR	Richard Horn - Axel Johnson
1984	Summer Falls Power Pro	WA	V Kaplan, (2) 96" TBV	Box Canyon Partnership	Richard Horn - Axel Johnson
1984	Glen Park	NY	V Kaplan	Grant County PUD	Howard Horn - Shirley Co
1984	Middle Fork	OR	H Pelton	Mercer Companies	Richard Horn - Axel Johnson
1984		OR	H Francis	Middle Fork Irrigation District	Richard Horn - Axel Johnson
1984		CA	H Francis	San Gabriel Hydro Electric	Richard Horn - Axel Johnson

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1984	SAN GABRIEL LEAD	CA	H Francis	San Gabriel Hydro Partnership	Richard Horn - Axel Johnson
1984	New Hogan	CA	H Francis	Modesto Irrigation District	Richard Horn - Axel Johnson
1984	Emporia	CA	H Francis	Synergics, Inc	Richard Horn - Axel Johnson
1985	Raystown	PA	V Semi-Kaplan	Allegheny Electric Cooperative	Richard Horn - Axel Johnson
1985	Wise No 2	CA	V Francis	Pacific Gas & Electric	Richard Horn - Axel Johnson
1985	Weeks Falls	CA	H Francis	South Fork II	Richard Horn - Axel Johnson
1985	Nacimiento	W/A	H Kaplan	Monterey Flood Control District	Richard Horn - Axel Johnson
1985	Napil River	CA	H Francis	State of Ponape-Micronesia	Richard Horn - Axel Johnson
1985	Warm Springs	CA	H Francis	Sonoma County Water Agency	Richard Horn - Axel Johnson
1985	Badger I	CA	V Francis	Santa Fe Irrigation District	Richard Horn - Axel Johnson
11/84 - 5/85	Stony Gorge Power Plant	CA	H Francis	City of Santa Clara	Mr Jerry Walker
5/85 - 11/85	Wolfson Power Plant	CA	Installation of (2) 3.5 MW horizontal Francis turbine/generator sets	60"	Mr Jerry Walker
5/85 - 11/85	San Luis Power Plant	CA	Installation of (1) 1000 KW, 1850 MM horizontal Kaplan turbine, and generator set, 90" turbine shutoff valve	Sverdrup Corporation	Mr Jerry Walker
11/85 - 12/85	Pyrites	CA	Installation of (1) 600 KW, 2500 MM horizontal Kaplan turbine, and generator set, 90" turbine shutoff valve	Sverdrup Corporation	Mr Jerry Walker
12/85 - 7/86	Lower Camp Creek	NY	Installation of (2) 3.5 MW horizontal Francis turbine/generator sets, 48" turbine shutoff valves	Hydra-Co Enterprises	Mr John Cordes
1/87 - 8/87	Lake Nacimiento	CA	Installation of (1) 2 MW Pelton turbine	Solar Research	Craig Crouch - Solar Research
4/87 - 8/88	Black Butte	CA	Installation of (1) 4.5 MW horizontal Francis turbine/generator set, 66" turbine shutoff valve	Monterey County Flood Control & Water District	Mr Mohammed Zaman
6/87 - 11/87	San Gabriel	CA	Installation of (1) 7.2 MW vertical shaft Kaplan turbine/generator, 120" turbine shutoff valve	City of Santa Clara	Mr Martin Hopper
9/88 - 12/88	Magie Dam	ID	Installation of (1) 4.2 MW horizontal Francis turbine/generator, 120" turbine shutoff valve	San Gabriel Hydro Partnership	Mr Myles Duffy
2/89 - 1/90	Terminus Dam	CA	Installation of (3) 3.5 MW horizontal Francis turbine brushless synchronous generators, 72" keystone butterfly valves	Westinghouse Credit Corporation	Niagara Turbine Systems, Inc
6/90 - 12/90	Sacramento Pumping Sta	CA	Installation of (1) 17.5 MW vertical shaft Kaplan turbine/generator 120" turbine shutoff valve	Kaweah River Power Authority	Steve Ingram
9/90 - 1992	Pond Creek	CA	Disassemble, refurbish & reassemble (4) 700 hp horizontal shaft pumps	Reclamation District No 1000	Doug Miller - American Hydro Bob
4/91 - 11/91	Forks of Butte	KY	Disassemble, refurbish & reassemble (4) 4700 hp pumping units	U.S. Army Dept. of Engineering	Treburg - JES
2/92 - 4/92	Elkhorn, Pritchard & Verona Pumping Stations	CA	Installation of (1) 16 MW, vertical Pelton turbine generator set	Energy Growth Partnership	Jim Clifton - RD 1000
8/91 - 10/94	Mojave Siphon	CA	Remove and rebuild 5 pumps (1-175hp, 1-125hp, 3-200hp)	Natomas Central Mutual Water Co	Phil Hoover - H&M Engineering Doug Miller - American Hydro
3/93 - 4/93	Appalachia Hydro Powerh	CA	Installation of (3) 12.5 MW, vertical Francis turbine/generator sets	Department of Water Resources	Peter Hughes - NCMWC
7/93 - 8/93	South Holston Dam	TN	Butterfly valves	Tennessee Valley Authority	Doug Miller - American Hydro
3/93 - 12/93	Sacramento Metro Irrigat	CA	Refurbish (2) 144" Butterfly Valves	Tennessee Valley Authority	Bob Ballelli - GE Hydro
11/92 - 5/93	San Gabriel	CA	Replacement of 180" Butterfly Valve under South Holston Lake	County of Sacramento	Bob Ballelli - GE Hydro
2/93 - 8/94	Lighthouse Marina	CA	Installation of new 75 hp pump, 7" motorized alum Reg. Gate, 10,000 LF of 24" RCP conduit	San Gabriel Hydroelectric Associates	Peter Hughes - NCMWC
10/93 - 4/94	Terminus Dam	CA	disassemble, inspect and repair or replace generator components	Lighthouse Marina & Riverbend Dev	McGuire & Hester Contractors Joe Hester
8/94 - 6/95	Rio Bravo	CA	Assisted in redesign and remanufacture of pumps	Kaweah River Power Authority	Al Fallon
			Removed, repaired and replaced leaking turbine shutoff valve scroll case joint seal, modified existing cable terminating & restraining system	Kern Hydro Partners	Doug Miller - Amer Hydro, Bob Treburg - JES
			Troubleshoot vib & stability prob. on (2) 7.5 MW turbine/generator sets	Independent Hydro Developers, Inc.	Ed Hudson
			Manufacture & Install 800' of welded spiral 5' dia. Steel siphon penstock, thrust	El Dorado Irrigation District, Ferrel	



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1996	El Dorado Penstock	CA	blocks and appurtenances	
10/95 - 6/96	El Dorado Powerhouse	CA	Serviced (2) 11.5 MW horizontal Peltons Rehabilitation of Powerstation	Pacific Gas & Electric
4/96 - 8/96	Red Bluff Diversion Dam	CA	Assessment, Evaluation & Rehabilitation of (2) 10' dia X 55' long arcmedes screw pumps	Pacific Gas & Electric
9/96 - 11/96	Mojave Siphon	CA	Install (3) 120" Butterfly valves & HCUPTU	US Bureau of Reclamation
12/96	Cove Hydro	CA	Replaced & installed hydraulic piping, refurbished cylinders on Pelton turbine	DWR
2/97	Cove Hydro	CA	Repair & align penstock	Ida-West Energy Co
1/97 - 2/97	Silver Springs	CA	Turbine repair and alignment	Ida-West Energy Co
11/96 - 2/97	Ponderosa Bailey Hydro	CA	Repair & replace thrust bearings and seals, install generator & horizontal Francis Turbine	Mega Renewables
10/96 - 2/97	Hatchett Creek Hydro	CA	Clean & align generator, recommissioned 4 jet vertical Pelton turbine	Ida-West Energy Co
6/96 - 4/97	Rio Bravo Hydro Plant	CA	Reinstalled & commissioned generators, re-installed (2) 7.5 MW vertical Kaplan	Mega Renewables
9/97	Bellagio Hotel	NV	Supervision of installation & testing of underwater stage lifts	Kern Hydro Partners
8/97 - 9/97	Rio Bravo Hydro Plant	CA	Generator testing, maintenance & cleaning	Cirque Du Soleil
10/97 - 12/97	Rio Bravo Hydro Plant	CA	Tested electrical, stators & generator, refurbished stop logs	Kern Hydro Partners
11/97 - 10/98	Ponsequin Wind Turbine	CO	Installation of 5.25 MW wind project (7) NEG Micon wind turbines	Energy Unlimited, Inc
5/98	Rio Bravo Hydro Plant	CA	Replacement of carbon seals, repair motor shaft	Kern Hydro Partners
6/98 - 9/98	Chelan Valves	WA	Valve Installation for (2) 90" butterfly valves	Chelan County PUD #1
1/99 - 7/99	Mojave Siphon	CA	Installation of (3) 120" Butterfly Valves with 12" by-pass systems	DWR
1/99 - 4/99	Rio Bravo Hydro Plant	CA	Repaired and replaced coatings and linings for 2 turbines, annual maintenance	Kern Hydro Partners
3/99	Belden Valves	CA	Installation and replacement seals for a 138" Butterfly Valve	PG&E
7/99 - 2/00	Blacklock Dam	SC	Installation of 108" fixed cone energy dissipating valve & appurtenances	Pablo Orozco - GE Hydro
8/99 - 12/99	Terminus	CA	Turbine repair and maintenance	Ed Hudson - IHD
12/99 - 5/00	Madera Power Plant	CA	Repair of runner blade assembly	Steve West - PUD
12/99	Lawrence Livermore Lab	CA	Installed wire system & set up generator for testing of wiring	Pablo Orozco - GE Hydro
11/00 - 5/01	Drop 1 Station	CA	Removal, loading & transport of (1) Shunko 1950 kw generator	Dita Shveyd - PG&E
11/00 - 12/00	Mojave Siphon	CA	Installation of new locks for TSV 1.2.3 & TBV and limit switch for TBV	Pablo Orozco - GE Hydro
4/00 - 5/00	Terminus Dam	CA	Turbine repair and maintenance	Bob Treiburg - IES
01/01	New Melones Dam	CA	Tie Rod Modification	Douglas Welch
12/01 - 1/02	Rio Bravo Hydro Plant	CA	Annual Maintenance	Steve Ingram - Handling Specialty
2/00 - 10/01	Lake Gaillard	CT	Supervision & monitoring of maintenance for (1) cylinder casing Francis Turbine, (1) turbine controller, generator & auxiliary equipment	Pablo Orozco - GE Hydro
4/01 - 8/01	Ponsequin Expansion	CO	Installation of 15 Vestas wind turbines	Bob Treiburg - IES
01/00 - 7/02	Horse Mesa	AZ	113 MW pump turbine rehabilitation for Unit #4 reversible Francis type pump turbine	Richard Welsh - BOR
03/00 - 6/02	Mormon Flat	AZ	60 MW pump turbine rehabilitation for Unit #2 reversible Francis type pump turbine	Ed Hudson - IHD
12/01 - 1/02	Southbay Aqueduct	CA	Valve blasting & coating	George Lulya - GE Hydro
7/02 - 2/03	La Miel	CA	Start up, commissioning, & performance testing for turbines and generators	Brian Merris - Vestas
7/02 - 6/03	Mokelumne	CA	Wicket Gate Repair	Pablo Orozco - GE Hydro
07/02	Lake Success	CA	Turbine Repair	Pablo Orozco - GE Hydro
8/02 - 10/03	Madera Power Plant	CA	Annual Maintenance	Mike Michaels - SY Trading
9/02 - 10/02	Terminus Dam	CA	Installation of 8 Vestas V47-660 Wind Turbines	National Electric Power Co. of Columbia
2/05 - 04/06	Hawai Wind Farm	HJ	Turbine Coating of draft tube and stuffing box	Ed Hudson - Framatome
1/03 - 3/03	Tulloch Dam	CA	Valve Seal and Penstock Repair	Wayne Miner
2/03	Indian Valley	CA	Commissioning Work	Douglas Welch
5/03 - 1/04	Esti	CA	Commissioning Work	Gene Kilgore - KRPA
2/03 - 3/03	Caruachi	Venezuela	Commissioning Work	Bob Treiburg - IES
				Sven Goran Bjuhr - GE Energy Sweder
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3/03 - 5/03	Invergarry & Ceannacrois	Scotland	Commissioning Work			Sven Goran Bjühr - GIE Energy Sweden
1/04 - 4/04	Bayano	Panama	Commissioning Work			Sven Goran Bjühr - GIE Energy Sweden
1/04 - 5/04	Lake Success	CA	Recoating & corrosion repair for linings		Lower Tule River Irrigation District	Wayne Miner
04/04	Horse Mesa	AZ	Commissioning Work		Salt River Project	GE Canada
8/04-3/16/05	Beardsley	CA	Turbine Replacement		Tri Dam	Edward J. Kislung
10/04-3/09	Hyatt	CA	Turbine Replacement		DWR	Sam Sublett
11/04-8/05	Puero	HI	Turbine replacement and retrofit penstock and switch gear to new turbine model		HELCO	Norman Uchida
11/07-3/08	Indian Valley	CA	Turbine & Generator Replacement		Yolo County Flood Control	Jack Snor
3/08-8/08	Butt Valley	CA	Dismantled, engineered and disgned 15ft butterfly valve		PG&E	Difa Shveyd - PG&E
7/08-10/08	Kohala Dutch	HI	Penstock Replacement, Flume Repair, Intake Repair, & Control Gates		Surety Kohala	Bill Shontell
8/08-present	FSSD	CA	Installation of 4 50kw Entegry Wind Turbines		Fairfield Susun Water Dist	Jane Tindal